REMARKS

Claims 1-3 and 8-10 have been rejected under 35 USC 103(a) as unpatentable over Klimasauskas in view of Piche; claims 4 and 5 have been rejected under 35 USC 103(a) as unpatentable over Klimasauskas in view of Piche, further in view of Amado; and claims 6 and 7 have been rejected under 35 USC 103(a) as unpatentable over Klimasauskas in view of Piche, further in view of Hoffberg. The rejections are respectfully traversed.

Klimasauskas discloses a "process control," respectively "an apparatus and a method for adaptively modeling and controlling an industrial process" (column 1, line 11-13). As a consequence, "adaptively modeling" is performed to improve the control of an industrial process by "a proportional-integral-derivative (PID) controller" (see column 1, line 28) or by a "distributed control system (DCS) 124" (as shown in figure 2, see column 5, line 52). Accordingly, Klimasauskas does not disclose a method for designing a technical system. Rather, the industrial process remains constant. The industrial process in this reference is determined by three types of variables, which are manipulated variables (MVs), disturbance variables (DVs) and controlled variables (CVs) (see column 6, line 1-3). These are measurement data of the predetermined industrial process system. With reference to figure 4a, input variables (101, 113) are the MVs and the DVs. Basing on the primary model 130 and the error correction model 131, which can be seen as a substitute model, at a corrected output 105 a predicted CV is generated, which is compared with an actual CV of the predetermined industrial process system.

However, no explicit numerical value for the quality of the substitute model (130, 131) is determined on a comparing result. Moreover, the primary model 130 and the error correction model 131 remain invariable, accordingly the substitute model is not adapted from a numerical value for the quality to be of as high a quality as possible. A hybrid run-time model (122) merely controls the distributed control system (DCS 124) (figure 2), which comprises an instrumentation and control computer (90, figure 1) to control the industrial process. This control is performed by controlling respectively adapting MVs. This procedure is also disclosed by figure 11.

In Piche, there is a device for modeling the operation of a plant. The operation of the plant, in this case, should be optimized. Figure 46 shows the over all system in which the control of

a plant is optimized by an optimizer 602. The optimizer 602 receives signals from the plant and inputs values to a controller 604 to control the plant via a DCS 606. According to figure 47, a dynamic model 612 receives inputs u(t) which are comprised of two types of variables, manipulatable variables (MVs) and disturbance variables (DVs) (column 39, line 26). These inputs are comparable to measurement data of a predetermined plant system. The dynamic model 612 can be seen as a substitute model to describe the predetermined plant system. Dynamic model 612 outputs "the output values CV" (control variables) which provide a prediction of the output value CV "which is CVP" (see column 40, line 6-8)." This is compared with an actual plant output value which is derived from a virtual on-line analyzer (VOA) 616. The VOA 616 is operable to receive the plant outputs CV and the inputs u(t). The output of the VOA 616 provides the actual output of the plant "which is CVa" which is input to a different circuit 618, the difference thereof being the offset or bias. Actual CVa are compared with predicted CVP. A comparing result is provided. This bias represents an offset which is then filtered with a filter 620 for input to an offset device 622 to offset external CV set points, i.e., desired CVd values, for input to the non-linear steady state model 610 (see column 8-16). Figure 17 of Piche et al. merely describes a statistic method for generating of a filter 620 of figure 47.

Piche does not disclose an explicit numerical value for the quality of the dynamic model 612 on the basis of the comparing result. Moreover, Piche does not disclose that the dynamic model 612 being comparable as a substitute model, is adapted from a numerical value for the quality to be of as high a quality as possible. Dynamic model 612 merely accounts for the offset to keep the steady state model 619 accurate (see column 39, line 55 to column 40, line 8). With reference to figure 12, desired yd(t) values are compared with predicted yP(t) values. The y(t)-values are equal to the control variables CV, which are basically the outputs of the plant (see column 39, line 56 to 59). Referring to figure 12, it can be seen that at k=0, the error is large and the system then must adjust the manipulated variables to minimize the error and force the predicted value to the desired value (see column 16, line 14-18). As a consequence, the dynamic model 612 remains constant and merely the above stated offset is changed to adapt the manipulated variables (MVs) to control and optimize the operation of the plant (see title). The technical plant system remains unchanged. There

is no designing of the plant, but there is an optimization of the plant operation by improving the manipulatable variables (MVs) in relationship to the desired controlled variables (CVd).

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no.449122016600. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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